

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant :	Satoshi Seo et al.	Art Unit :	1774
Serial No. :	10/026,064	Examiner :	Camie Thompson
Filed :	December 21, 2001	Conf. No. :	8559
Title :	LUMINESCENT DEVICE		

Mail Stop Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO ACTION OF JUNE 25, 2007

Claims 1, 3-7, 9-12, 25, 27-30, 114, 118-121 and 125-142 are pending with claims 1, 7, 25, 30, 114, 121 and 129 being independent.

Applicant acknowledges with appreciation the Examiner's allowance of claims 30, 114, 118-121 and 125-142.

Claims 1, 3-7, 9-12, 25 and 27-29 have been rejected as unpatentable over Aziz, U.S. Patent No. 6,773,830.

With respect to claim 1 and its dependent claims, applicant requests reconsideration and withdrawal of this rejection because, as acknowledged by the Examiner, Aziz does not describe a mixed layer provided between the first layer and the second layer, where the mixed layer includes the hole injecting material and a hole transporting material, and there is a concentration gradient such that a concentration of the hole transporting material is increased in a direction toward the cathode from the anode and a concentration of the hole injecting material is decreased in a direction toward the cathode from the anode, and because, contrary to the Examiner's assertion, it would not have been obvious to modify Aziz's device to include such a mixed layer.

The rejection asserts, without support, that a concentration gradient (presumably of the hole transporting material) increases the hole mobility of the device, that a concentration gradient in the electron transporting material reduces electron mobility, and that it therefore would have been obvious to have two such gradients in order to have electron/hole recombination to increase luminance. Applicant has not been able to find any recitation in Aziz that these concentration gradients would have these effects. Rather, Aziz, at col. 17, lines 15-18, merely discloses a

mixed region 14 comprising, for example, a mixture of (1) a tertiary aromatic amine (which may have hole transporting property or hole injecting property), (2) a metal oxinoid (Alq₃; which may have an electron injecting property), and (3) a green emitting coumarin dye. Elsewhere, at col. 16, lines 58-65, and col. 8, lines 58-67, Aziz merely discloses that a hole transport region can comprise a single layer or a plurality of layers, typically 2 or 3, laminated on each other, and comprised of at least one material selected from the group of materials including CuPc (which may have a hole injecting property), TPD (which may have a hole transporting property), and the like.

Moreover, even if Aziz had indicated that concentration gradients would have the effects asserted by the Examiner, this would not have led one of ordinary skill in the art to arrange the gradients in the specific manner recited in the claim.

Accordingly, for at least these reasons, the rejection should be withdrawn.

Similarly to claim 1, independent claim 7 recites a mixed layer provided between the first layer and the second layer, where the mixed layer includes the electron transporting material and the electron injecting material, there is a concentration gradient such that a concentration of the electron injecting material is increased in a direction toward the cathode from the anode and a concentration of the electron transporting material is decreased in a direction toward the cathode from the anode. Accordingly, applicant requests reconsideration and withdrawal of the rejection of claim 7 and its dependent claims for the reasons discussed above with respect to claim 1.

With respect to claim 25 and its dependent claims, applicant requests reconsideration and withdrawal of the rejection because Aziz does not describe or suggest (and the rejection does not assert that Aziz does so) a blocking layer adjacent to the luminescent layer and comprising a blocking material and a material contained in the luminescent layer, where the blocking material and the material contained in the luminescent layer have electron transport property, and where a concentration of the material contained in the luminescent layer is decreased in a direction toward the cathode from the anode and a concentration gradient of the blocking material is increased in a direction toward the cathode from the anode, as recited in claim 25.

Applicant submits that all claims are in condition for allowance.

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The fee in the amount of \$120 for the one-month extension of time is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: October 25, 2007

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